IN THE CLAIMS

Claims 1-94 (cancelled)

Claim 95 (currently amended): A method for the in vitro enzymatic synthesis of a purine deoxyribonucleoside comprising reacting deoxyribose 1-phosphate (dR1P) and a nucleobase and catalyzing said enzymatic synthesis with a purine nucleoside phosphorylase (PNP, EC 2.4.2.1), wherein a deoxyribonucleoside and inorganic phosphate are formed and wherein the inorganic phosphate is removed by ~~substrate phosphorylation of said inorganic phosphate with a substrate~~ phosphorylation of a substrate with said inorganic phosphate.

Claim 96 (previously presented): The method of claim 95, wherein the nucleobase is selected from the group consisting of thymine, uracil, adenine, guanine, hypoxanthinine and analogs thereof.

Claim 97 (previously presented): The method of claim 96, wherein said analog is selected from the group consisting of: 2-thio-uracil, 6-aza-uracil, 5-carboxy-2-thio-uracil, 6-aza-thymine, 6-aza-2-thio-thymine and 2,6-diamino-purine.

Claim 98 (previously presented): The method of claim 95, comprising reacting said inorganic phosphate with fructose-diphosphate (FDP) to form pyrophosphate and fructose-6-phosphate (F6P).

Claim 99 (previously presented): The method of claim 98, wherein the reaction is catalyzed by a Ppi-dependent phosphofructokinase (PFK-Ppi, EC 2.7.1.90).

Claim 100 (previously presented): The method of claim 95, comprising reacting said inorganic phosphate with a polysaccharide to form a monosaccharide and a phosphorylated monosaccharide.

Claim 101 (previously presented): The method of claim 100, wherein the polysaccharide is a disaccharide.

Claim 102 (previously presented): The method of claim 101, wherein the disaccharide is sucrose or maltose.

Claim 103 (currently amended): The method of claim 102, wherein the ~~phosphate transfer~~ substrate phosphorylation is catalyzed by a sucrose phosphorylase (EC 2.4.1.7) or a maltose phosphorylase (EC 2.4.1.8).

Claim 104 (previously presented): The method of claim 100, further comprising reacting the phosphorylated monosaccharide to form a galactoside.

Claim 105 (previously presented): The method of claim 95, further comprising generating deoxyribose-1-phosphate by isomerizing deoxyribose 5-phosphate (dR5P) prior to reacting said deoxyribose-1-phosphate with a nucleobase.

Claim 106 (currently amended): The method of claim 105, comprising isomerizing said deoxyribose 5-phosphate with ~~a deoxyribomutase (EC 2.7.5.6) or a~~ phosphopentose mutase (PPM, EC 5.4.2.7).

Claim 107 (previously presented): The method of claim 105, further comprising forming the deoxyribose-5-phosphate by condensing glyceraldehyde 3-phosphate (GAP) with acetaldehyde prior to isomerization.

Claim 108 (previously presented): The method of claim 107, comprising catalyzing said condensation with a phosphopentose aldolase (PPA, EC 4.1.2.4).

Claim 109 (previously presented): The method of claim 107, further comprising enzymatically generating said glyceraldehyde 3-phosphate (GAP) from fructose 1,6-diphosphate, dihydroxyacetone (DHA) or glycerolphosphate prior to condensation.

Claim 110 (previously presented): The method of claim 109, comprising generating the glyceraldehyde 3-phosphate from fructose 1,6-diphosphate in a reaction catalyzed by an FDP-aldolase I or an FDP-aldolase II.

Claim 111 (currently amended): The method of claim 95, further comprising reacting a deoxyribonucleoside containing a first nucleobase with a second nucleobase to form a deoxyribonucleoside containing the second nucleobase, wherein said reaction is catalyzed by a nucleoside 2-deoxyribosyl transferase (NdT, EC 2.4.2.6), and

wherein said NdT is obtained from *Lactobacillus leichmannii* and is encoded by (a) a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NO: 13, (b) a nucleic acid molecule consisting of a nucleotide sequence encoding the protein encoded by SEQ ID NO: 13 or (c) a nucleic acid molecule hybridizing under stringent conditions to the nucleic acid molecule of (a) or (b), wherein the stringent conditions are 55°C, 1 x SSC buffer and 0.1% SDS.

Claim 112 (previously presented): The method of claim 111, wherein said second nucleobase is selected from cytosine and cytosine analogs.

Claim 113 (previously presented): The method of claim 111, wherein said second nucleobase is selected from the group consisting of 5-aza-cytosine, 2,6-dichloro-purine, 6-aza-thymine and 5-fluoro-uracil.

Claim 114 (cancelled)

Claim 115 (cancelled)

Claim 116 (currently amended): A method for the in vitro enzymatic synthesis of purine deoxyribonucleosides comprising the steps of:

(i) condensing glyceraldehyde 3-phosphate (GAP) with acetaldehyde to deoxyribose 5-phosphate (dR5P),

(ii) isomerizing deoxyribose 5-phosphate to deoxyribose 1-phosphate (dR1P) and

(iii) reacting deoxyribose 1-phosphate and nucleobase and catalyzing said reaction with a purine nucleoside phosphorylase (PNP, EC 2.4.2.1), wherein a deoxyribonucleoside and inorganic phosphate are formed, and wherein the inorganic phosphate is removed by phosphorylation of a substrate with said inorganic phosphate.

Claim 117 (currently amended): The method of claim 116, wherein the complete reaction of steps (i) to (iii) is carried out without isolating intermediate products.

Claim 118 (previously presented): The method of claim 116, wherein the glyceraldehyde 3-phosphate (GAP) is generated from fructose 1,6-diphosphate (FDP), dihydroxy-acetone (DHA) or glycerolphosphate (GP) prior to condensation.

Claim 119 (previously presented): The method of claim 116, further comprising removing excess acetaldehyde before step (ii).

Claim 120 (currently amended): The method of claim ~~116~~ 118, further comprising removing excess starting materials or by-products of the generation of GAP before step (ii).

Claim 121 (currently amended): The method of claim 120, wherein said excess starting materials ~~or by-products are selected from the group consisting of~~ is fructose 1,6-diphosphate and said excess by-product is ~~deoxyxylulose~~ deoxyxylulose 1-phosphate (dX1P).

Claim 122 (currently amended): The method of claim ~~116~~ 118, wherein no ~~substantial amounts of~~ starting materials or by-products of the generation of GAP are present before step (ii).

Claim 123 (currently amended): The method of claim ~~122~~ 118, wherein ~~said starting material s or by-products are selected from the group consisting of fructose 1,6 diphosphate and deoxyxylulose 1 phosphate (dX1P)~~ GAP is generated from FDP, and DXP1 is generated as an excess by-product thereby.

Claim 124 (cancelled)